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CENTRE

FOOD PROCESSING DEVELOPMENT CENTRE

Company Focus

Alberta Industrial Mustard Company

Last year, the Alberta Industrial Mustard Company (AIM) doubled its production of ground, deheated mustard at its Warner plant, thanks to recommendations made by Centre staff.

The Challenge. . . .

AIM managers had initially asked the Centre's engineering services to study the feasibility of equipment upgrades and determine when they would need a new facility to meet production requirements. They built the current plant in 1978, when ground, deheated mustard was a novel product. Since then, increasing awareness and acceptance of the product, with its unique functional properties, has resulted in a proportionate demand for more mustard.

The Solution. . . .

Morris Friske and Peter Davies reviewed the process at the plant and talked with AIM management about it's plans. They assessed the production process and identified alternate equipment and procedures to optimize the efficiency of a new facility. However, rather than building a new plant, engineering services suggested some changes in the existing plant. After taking measurements, they developed a flow chart of the process. It showed each major piece of equipment, utility demand, process inputs, control parameters, typical operating conditions and maximum design capacities. Then they calculated the efficiency of each piece of equipment in the production line to show where to make improvements. The next step was to compare this design with the equipment being used in the AIM plant. They found that the existing equipment was reasonably effective, except for the tendency of the product to compact and plug the conveying systems. So they worked with plant staff, manufacturers' recommendations and industry contacts to redesign and improve the pneumatic conveying system.

. . . .The Result

The refit has resulted in production gains because the equipment doesn't have to be cleaned as often, it doesn't plug up as often, it runs cooler and parts last longer. The refit has significantly increased the grinding operation's capacity. The result is a high quality, more consistent product. Some minor fine-tuning should meet AIM's needs for several more years.

A successful mustard industry starts with a good crop.

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Alberta
AGRICULTURE, FOOD AND RURAL DEVELOPMENT

Food Processing Development Centre, Alberta Agriculture, Food and Rural Development, 6309 - 45th Street, Leduc, Alberta, T9E 7C5

New Technologies

Trade shows and conferences are important ways for Centre staff to expand it's expertise in special areas such as identification of more efficient equipment, modernized processing methods and new product trends.

Peter Davies is the facilities manager at the Centre. When he travelled to the Hague to attend the 19th International Congress of Refrigeration, he also made several technical tours of facilities in the Netherlands.

Presentations at the congress included:

- low temperature pathogen survival. Microbial growth is influenced by acid levels, temperature, and water, but not necessarily by the food on which they grow. Peter found that commercial software is now available which models microbial growth in food systems.
- more environmentally friendly alternatives to chlorinated fluorocarbon refrigerants. An example of the latter is R12 dichlorodifluoromethane which we know is harmful to the environment.
- improvements to marine refrigerated transport systems. This could be an attractive alternative to air cargo for Alberta processors.
- hygienic design of process lines.

Peter's tours included:

- the Iglo Olas Produktie bv (bv is the Dutch abbreviation for Incorporated), where they make ice cream products. Plant management emphasizes hygienic processing and they use HACCP principles.
- the Tetra Laval Food Koppens bv. This company manufactured several pieces of the Centre's equipment. Peter noted several improvements in equipment design, particularly the waterproofing of electronics.
- Harimex-Ligos bv, the parent company of FNA Foods Inc. The latter company is a long-term client of the Centre, based in Strathmore.
- the Nutrition and Food Research Institute (TNO). This is their equivalent of our National Research Council. Interaction between the Centre and the TNO has been valuable for both groups.

New Meat Technologies

Robert Gibson, meat scientist, attended the ANUGA World Food Fair. The trade show featured 10 product sectors in 14 exhibit pavilions. Robert says, "My work right now is focussed on value-added products, so I was interested in reviewing the latest products from around the world."

Some of these included co-extruded luncheon meat with seasonal or "character" designs, snack pack jellied meats, Prosciutto hams, cheese enrobed capicola ham and branded meats. There was a microwaveable cordon bleu nugget, individual servings of seasoned and marinated pork and a selection of processed specialty meats. Exhibitors offered samples dishes prepared from kangaroo, wild boar, bison, goose, turkey, horse and venison.

"Other than kangaroo," he notes, "we could see many of these specialty meats here."

Functional

Dr. Susan Lutz oversees all projects at the Ce
International Conference on Functional Fo
nourishment, sensory, and disease preventio
prevention. Scientists from 27 countries pre

"These presentations gave us a working de
looked at the differences in worldwide reg
labelling, that are going to require some in
Additional presentations included:

- growth markets
- scientific validation of health claims
- consumer attitudes

Functional foods present an exciting fronti
Lutz says, "We can extract or manufacture
grown crops."

In fact, a committee of industry, academic a
establishing a Centre of Excellence in Funct
Dr. Lutz has been invited to sit on this com

Are you wondering just what a functional fo
the Conference," Dr. Lutz says, "is that a fun
added health benefit but is still part of an eve

Alberta pea fibre adds health bonus to pasta pro

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onal Foods

the Centre, and she attended the First
l Foods. Food has three main functions:
vention. The conference focussed on disease
s presented about 100 papers.

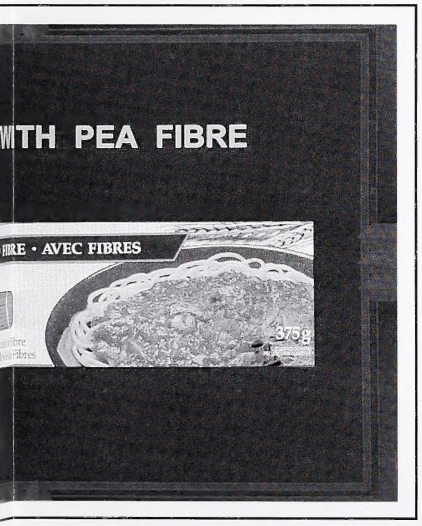
g definition for a functional food. We also
regulatory status and several issues, like
e international consensus," said Dr. Lutz.

- case studies of functional ingredients or foods – flavonoids, carotenoids, tocotrienols, oligosaccharides, phytoestrogens, probiotics, and resistant starches

ntier for Alberta processors, because as Dr.
ure many of these ingredients from Alberta

mic, and government experts is currently
unctional Foods at the University of Alberta.
committee.

al food is? "The definition we accepted at
a functional food is one which provides an
an everyday diet."



products.

Project Focus

Nestle Integrated Menu System

Have you ever been a guest when they served a sit-down meal to hundreds of people and wondered how the food-service staff managed so efficiently? There's been a shift over the past few years in the industry to the new Cook/Chill/Reheat system. Rather than cook and hold food in the kitchen, meal portions are cooked in a flexible package and quickly chilled in the processing plant. Then the portioned entrees are distributed to food-service establishments where they are reheated as needed.

Meat scientists at the Centre have developed a portion pack prime rib entree for the Nestle Integrated Menu System (NIMS). The prime rib portions are prepared in a flexible, see-through package and quick-frozen in a processing plant. Robert Gibson, a meat scientist, worked on the project.

He says, "Food-service patrons expect prime rib roast cooked to their liking. One of our challenges was to find a method to accommodate those who like beef well cooked and also those who like it rare."

The prime rib should maintain all the natural juices and provide the same aroma and flavor of freshly roasted beef.

Gibson says, "We tested several cook/hold/serve systems and we feel we have met all these requirements."

The prime rib portion packs were added to Nestle's NIMS product line in March of 1997. Currently, they are distributing the ribs to hotel, convention and banquet facilities in Canada and the U.S. At a large function, workers can assemble the meal components on plates, then stack the plates on racks in specialized ovens. Reheating takes less than ten minutes and then the servers take them to the tables. When more food-service establishments design their operations to take advantage of the Cook/Chill/Reheat system, they'll probably ask for additional types of portioned entrees. We can expect to see more products developed using this technology.

New technology allow meal portions to be cooked, chilled and then reheated.

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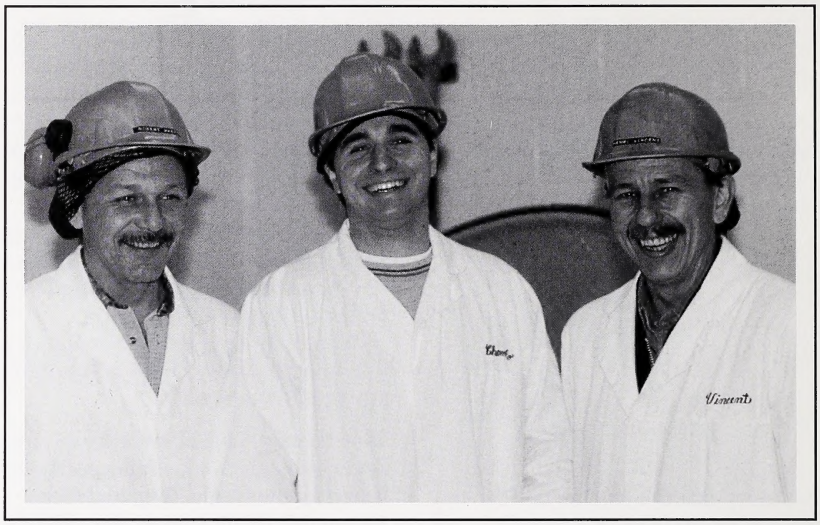
Staff Focus

Our Technologists

Robert Myers, Henri Vincent and Gabriel Chemello provide technical support to help clients with set-up, operation, sanitation and maintenance of the equipment for their processing needs. They also train our clients' staff in sanitation methods and safety procedures so that they can maintain quality control standards when they leave the Centre.



Robert Myers, left. Gabriel Chemello, centre. Henri Vincent, right.

Robert Myers brings extensive supervisory experience in the table ready meat and ice cream industries.

"Quality control, sanitation, and safety are extremely important here at the Centre," Myers says. He worked with Connie Zagrosh-Miller and Lawrence Roth of the Food Quality Branch to develop a sanitation short course that the Centre offered to dairy and meat processors. He also helped prepare a client orientation package for Centre users and he chaired the Centre's safety committee.

"The clients I work with need help with scaling their production requirements to interim processing. We develop production lines, establish where the critical control points are, and monitor the product until it's packaged and leaves the Centre. Many of our clients have never scaled up to this degree so it's really a training process to run with larger equipment that may have a different effect on final products."

Gabriel Chemello holds a Management Diploma from the Northern Alberta Institute of Technology and has supervisory food processing experience gained at Supreme Produce Processors and Primo Foods Ltd. Gabriel's primary role is to work with industrial clients who are using pilot plant equipment. He assists in maintaining the Centre's equipment. Last July, Gabriel was named as the Centre's Health and Safety Program Co-ordinator.

"My main goal for health and safety is to get the Centre a certificate of recognition as a safe worksite, according to Provincial regulations," he says. With his WHMIS training, first aid certificate and Transportation of Dangerous Goods Certificate, Gabriel's leadership is a real asset in the health and safety aspects of the Centre's work.

Henri Vincent is a processing technologist. He has 14 years experience as a production supervisor for table ready meat products and ice cream products. Henri works with industrial clients to establish processing procedures for products like frozen entrees, desserts, snack foods, processed meat products and processed vegetable products.

"To get a client started on an appropriate process procedure, I work closely with the project leader to see what equipment we'll need to achieve the end product. Then we try to set the equipment into an efficient production line. Next, the project leader and I train the client and employees. After that, clients can move to interim production of their product using our facilities."

Food Processing Development Centre
Alberta Agriculture, Food and Rural Development
6309 - 45th Street
Leduc, Alberta
T9E 7C5
Phone: (403) 986-4793
Fax: (403) 986-5138